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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/566,676

12/20/2006

Andre Besner

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EXAMINER

WALTERS JR, ROBERT S

ART UNIT

PAPER NUMBER

1792

NOTIFICATION DATE

DELIVERY MODE

06/29/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/566,676	<b>Applicant(s)</b> BESNER ET AL.	
	<b>Examiner</b> ROBERT S. WALTERS JR	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 25-33,35 and 37-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 25-33,35 and 37-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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## **DETAILED ACTION**

### ***Status of Application***

Claims 1-24, 34 and 36 are cancelled. Claims 25-33, 35 and 37-45 are pending and presented for examination.

### ***Response to Arguments***

Applicant's arguments with respect to claims 25-33, 35 and 37-45 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 25-33, 35 and 37-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Besner et al. (U.S. Pat. No. 6063883) in view of Miettinen et al. (U.S. Pat. No. 3663261) and Kelso (U.S. Pat. No. 4303705).

I. Regarding claims 25, 27, 33, 35, 40-42 and 44-45, Besner teaches a process for treating wooden elements (column 3, lines 49-50) and treated wooden elements obtained by the process (see any of the Examples) comprising the following steps:

- (1) impregnating the wooden elements with a mixture comprising at least one water-borne wood preservative, specifically chromated copper arsenate (see Example 1, column 7) and polymerizable reactive groups (column 3, lines 53-62) having a reactive double bond that will form a polymer under polymerizing conditions (column 4, lines 8-21),
- (2) heating the wooden elements at a temperature between 25 and 100 °C to fix the preservative and polymerize the reactive groups (column 4, lines 44-47), and
- (3) drying the wooden elements (see Example 1, column 7, lines 66-67).

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Besner further teaches that the wooden elements treated by this method have an amount of the polymerizable reactive groups impregnated in the 0-2 cm depth being  $16.2 \pm 3.4 \text{ kg/m}^3$  (Example 1).

Besner fails to explicitly teach the step of conditioning the wooden elements to reduce their moisture content to the claimed ranges. Besner further fails to teach the absence of a thermo-initiator and heating at a temperature of at least  $51^\circ\text{C}$ . With regards to the temperature, it would have been obvious to one of ordinary skill in the art at the time of the invention that the temperature is a result effective variable given that varying it will obviously vary the degree of polymerization or the fixing of the wood preservative as well as the length of time required to accomplish these operations. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed range through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See In re Boesch, 205 USPQ 215 (CCPA 1980).

Besner teaches utilizing a thermal polymerization initiator to catalyze the polymerization (abstract), however fails to teach the process in the absence of a thermo-initiator, as noted above. However, Miettinen teaches a process of impregnating wood with polymerizable reactive groups having reactive double bonds (abstract), and then polymerizing the elements in the wood by application of gamma radiation or high energy electron radiation (abstract). Miettinen further teaches that this polymerization can be conducted in the absence of a thermo-initiator (column 4, lines 39-42). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Besner's method by eliminating the thermo-initiator from the

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composition and polymerizing the polymerizable double bonds by treating the wooden elements with heat and high energy radiation as disclosed by Miettinen. One would have been motivated to make this modification as Miettinen teaches that this is cost effective (as chemical catalysts are normally expensive), the reaction can be more reliably controlled, and there are no residual catalyst impurities in the wooden elements (column 4, lines 42-54).

As disclosed, Besner also fails to teach the conditioning step. It is well known in the art to condition the wood, prior to treatment, for example by drying to remove some of the moisture content. For example, Kelso teaches a wood treatment of applying chromated copper arsenate to wood and heating to fix the chemicals (see abstract). The wooden elements to be treated are subjected to a first step of conditioning the wood to reduce the moisture content by air drying to 25% (see Example 7, column 8) followed by the treatment with the wood preservative. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Besner's method to include a conditioning step of removing the moisture content as taught by Kelso. One would have been motivated to make this modification as the removal of some of the moisture content prior to treatment would allow for better impregnation of the water-borne wood preservative solution into the wood thereby providing better retention of the chemical upon fixing. Furthermore, one of ordinary skill in the art at the time of the invention could have modified Besner's method to include Kelso's conditioning step with a reasonable expectation of success and the predictable result of providing a product that is better prepared for the subsequent solution treatments.

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II. Regarding claim 26, Besner in view of Miettinen and Kelso teach all the limitations of claim 25 (see above) including the step of conditioning the wooden elements to reduce the moisture content (see above) followed by impregnating the wooden elements with a water-borne wood preservative (see above). Besner in view of Miettinen and Kelso also teach that the impregnation with the wood preservative can occur prior to treatment with a solution containing the polymerizable reactive groups (see Besner at column 4, lines 2-5). Besner in view of Miettinen and Kelso further teach heating the wooden elements at greater than 51 °C (see above) to effect fixation of the wood preservative, as well as the step of treating the wood with a polymerizing solution that can be added after impregnation with the wood preservative (see above). Finally, Besner in view of Miettinen and Kelso also teach the step of subjecting the wooden elements that have been treated with the polymerizing solution to conditions to effect polymerization (column 4, lines 17-21).

Besner in view of Miettinen and Kelso fail to explicitly teach that the wood elements impregnated with the wood preservative prior to treatment with the polymerizing solution are heated at greater than 51 °C to fix the wood preservative and that this material is then treated with the polymerizing solution also containing an additional wood preservative. Besner in view of Miettinen and Kelso teach that it is well known to apply a wood preservative solution and heating at greater than 51 °C to fix the preservatives (see Besner at column 1, lines 57-65). Besner also teaches that the polymerizing treatment solution can be added as a mixture of the polymerizing agents and the wood preservative.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Besner in view of Miettinen and Kelso's method to impregnate the wood

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with wood preservative and then fix that preservative (by the conventional method), followed by treating the wood with the polymerizing solution and an additional amount of wood preservative. One would have been motivated to modify Besner in view of Miettinen and Kelso's steps, because in separating the steps the wood preservative could be added at two intervals, ensuring that it was properly added in the usual treatment step (without the polymerizing solution) as well as allowing for the introduction of a greater concentration of the wood preservative in the wood during addition of the polymerizing solution. This would impart the wood with improved characteristics over wood that had been only treated once with preservative. Further, one of ordinary skill in the art at the time of the invention could have separated the fixation and polymerization steps while adding additional wood preservative in the polymerizing solution with a reasonable expectation of success and the predictable result of providing a wooden element having the additional benefit of a greater concentration of the wood preservative contained in the wooden elements.

III. Regarding claims 28-29, Besner in view of Miettinen and Kelso teach all the limitations of claim 26 (see above). Further, Besner in view of Miettinen and Kelso teach that the treatment solution contains 2% w/v of wood preservative and 4 to 10% w/v of the polymerizable reactant groups (see Besner at column 6, lines 15-24). It should be noted that these values are not percentages by weight and therefore do not have a 1:1 relationship with the values claimed, however, it is expected that these values would fall within the ranges as claimed. Alternatively, it would have been obvious to one of ordinary skill in the art at the time of the invention that the concentrations of the wood preservative and polymerizable reactive groups are result effective



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variables as optimization of these concentrations would allow for optimization of the concentrations of these components in the wood elements as well as the characteristics of the wood, such as hardness. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed ranges through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See *In re Boesch*, 205 USPQ 215 (CCPA 1980).

IV. Regarding claim 30, Besner in view of Miettinen and Kelso teach all the limitations of claim 29 (see above), however fail to teach the concentration of the wood preservative being 0.04 to 0.12% in the polymerizing solution of step b3). However, as taught above, the concentration of the wood preservative in the solution is a result effective variable, in this case the second concentration of the wood preservative added in the polymerizing solution would effect the final concentration of the wood preservative in the wooden elements and therefore effect their hardness and other characteristics. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed range through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See *In re Boesch*, 205 USPQ 215 (CCPA 1980).

V. Regarding claim 31, Besner in view of Miettinen and Kelso teach all the limitations of claim 27 (see above), and further teach that the solution contains 2% w/v of the wood

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preservative and 4 to 10% w/v of the polymerizable reactive groups, though Besner in view of Miettinen and Kelso fail to explicitly teach the claimed ranges. However, as disclosed above, the concentration of the wood preservative and the polymerizable reactive groups are result effective variables (see above). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed ranges through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See *In re Boesch*, 205 USPQ 215 (CCPA 1980).

VI. Regarding claim 32, Besner in view of Miettinen and Kelso teach all the limitations of claim 26, however fail to explicitly teach a cooling step being carried out for a period of at least 1 to 12 hours. However, it would be obvious to one of ordinary skill in the art at the time of the invention to modify Besner in view of Miettinen and Kelso's method to include a cooling step for a period of 1 to 12 hours after the impregnation and fixing of the wood with the wood preservative. One would have been motivated to make this modification as allowing the wooden elements to cool would ensure that the polymerizing solution to be applied next would not polymerize on contact and could actually be impregnated into the wood prior to heating and polymerization. This would then ensure that the polymer would be better contained in the wood, rather than just contained on the surface of the wood and potentially able to be readily washed away.

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VII. Regarding claims 37-39, Besner in view of Miettinen and Kelso teach all the limitations of claim 29 (see above). Besner in view of Miettinen and Kelso further teach that the reactive groups are selected from groups comprising allyl, vinyl, acrylate, or methacrylate (see Besner at column 4, lines 8-11), specifically polyethylene glycol diacrylates having a molecular weight of 200 to 1000 daltons (see Besner at column 6, lines 48-52).

VIII. Regarding claim 43, Besner in view of Miettinen and Kelso teach all the limitations of claim 25, however fail to teach that the amount of wood preservative impregnated in the wooden elements is equal or greater than  $9.6 \text{ kg/m}^3$ . However, the amount of wood preservative impregnated in the wooden elements is a result effective variable, in that optimization of the amount impregnated will allow for optimization of the hardness of the wooden elements as well as other characteristics of the wooden elements. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed range through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See *In re Boesch*, 205 USPQ 215 (CCPA 1980).

### ***Conclusion***

Claims 25-33, 35 and 37-45 are pending.

Claims 25-33, 35 and 37-45 are rejected.

No claim is allowed.

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Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT S. WALTERS JR whose telephone number is (571)270-5351. The examiner can normally be reached on Monday-Friday, 8:00am to 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571)272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael Barr/  
Supervisory Patent Examiner, Art Unit  
1792

/ROBERT S. WALTERS JR/  
June 22, 2009  
Examiner, Art Unit 1792